

WHAT IS CLAIMED IS:

1           1. A method of generating a graphics image comprising:  
2            storing a plurality of texture descriptors in a graphics memory; and  
3            retrieving the plurality of texture descriptors from the graphics memory for use in  
4 a graphics processor.

1           2. The method of claim 1 wherein the plurality of texture descriptors are  
2 stored once in the graphics memory and retrieved a plurality of times for use by the graphics  
3 processor.

1           3. The method of claim 2 wherein a base address and index are received by  
2 the graphics processor for each retrieved texture descriptor.

1           4. The method of claim 3 wherein the base address and the index are  
2 provided by software to the graphics processor.

1           5. The method of claim 2 wherein an address of a pointer is provided for  
2 each of the plurality of texture descriptors.

1           6. The method of claim 5 wherein the address of the pointer is provided by  
2 software to the graphics processor.

1           7. The method of claim 2 wherein an index to a pointer table is provided for  
2 each of the plurality of texture descriptors.

1           8. The method of claim 7 wherein the index to the pointer table is provided  
2 by software to the graphics processor.

1           9. The method of claim 2 wherein a pointer is provided for each of the  
2 plurality of texture descriptors.

1           10. The method of claim 9 wherein the pointer is provided by software to the  
2 graphics processor.

1           11. A method of generating a graphics image comprising:

1                   13.     The method of claim 11 wherein a base address and index are provided by  
2     the shader program for each of the plurality of texture descriptors.

1 14. The method of claim 11 wherein an address of a pointer is provided by the  
2 shader program for each of the plurality of texture descriptors.

1                   15.     The method of claim 11 wherein an index to a pointer table is provided by  
2     the shader program for each of the plurality of texture descriptors.

1                           16.     The method of claim 11 wherein a pointer is provided by the shader  
2     program for each of the plurality of texture descriptors.

1                   17.     The method of claim 11 wherein when at least some of the plurality of  
2     texture descriptors are retrieved from the graphics memory, they are prefetched.

1                           18. The method of claim 17 wherein before a texture descriptor is prefetched,  
2 the graphics processor receives an indication to prefetch the texture descriptor from the graphics  
3 memory.

1                   19. A method of generating a graphics image comprising:  
2                   receiving a first texture descriptor, a first hint, and a first command from a  
3                   graphics pipeline, the first command using the first texture descriptor;  
4                   retrieving a second texture descriptor identified by the first hint;  
5                   retrieving a first portion of a shader program comprising:

a second command using the second texture descriptor; and  
a third command using a third texture descriptor; and  
retrieving the third texture descriptor.

1                   21.     The method of claim 19 wherein the first texture descriptor is stored in a  
2     first register, the second texture descriptor is stored in a second register, and the third descriptor  
3     is stored in a third register.

1                   22. The method of claim 21 further comprising:  
2                   retrieving a second portion of the shader program comprising a fourth command  
3                   using a fourth texture descriptor; and  
4                   retrieving the fourth texture descriptor,  
5                   wherein the fourth texture descriptor is stored in the second register.

1           23. A method of generating a graphics image comprising:  
2           retrieving a portion of a shader program comprising an instruction using a texture  
3           descriptor; and  
4           prefetching the texture descriptor from a graphics memory before the instruction  
5           is executed.

1                   24.     The method of claim 23 wherein a base address and index are provided by  
2     the shader program for each of the plurality of texture descriptors.

1                    25.     The method of claim 23 wherein an address of a pointer is provided by the  
2     shader program for each of the plurality of texture descriptors.

1                   28. An integrated circuit comprising:  
2                   a shader circuit;  
3                   a texture circuit coupled to the shader circuit; and  
4                   a frame buffer interface coupled to the texture circuit,  
5                   wherein the texture circuit retrieves texture descriptors from a memory.

1                   29. The integrated circuit of claim 28 wherein the texture circuit retrieves  
2                   texture descriptors from the external memory using the frame buffer interface.

1                   30. The integrated circuit of claim 29 wherein the shader provides an  
2                   instruction for the texture circuit to retrieve the texture descriptors from the graphics memory.

1                   31. A graphics processor comprising:  
2                   a shader circuit;  
3                   a texture circuit including a texture cache coupled to the shader circuit; and  
4                   a frame buffer interface coupled to the texture circuit,  
5                   wherein the texture circuit retrieves a plurality of texture descriptors from an  
6                   external memory coupled to the frame buffer interface and textures are stored in the texture  
7                   cache.

1                   32. The graphics processor of claim 31 wherein a base address and index are  
2                   provided by the shader to the texture circuit for each of the plurality of texture descriptors.

1                   33. The method of claim 31 wherein an address of a pointer is provided by the  
2                   shader to the texture circuit for each of the plurality of texture descriptors.

1                   34. The method of claim 31 wherein an index to a pointer table is provided by  
2                   the shader to the texture circuit for each of the plurality of texture descriptors.

1                   35. The method of claim 31 wherein a pointer is provided by the shader to the  
2                   texture circuit for each of the plurality of texture descriptors.

1                   36. An integrated circuit comprising:  
2                   a shader circuit;

3           a texture circuit including a texture cache coupled to the shader circuit; and  
4           a frame buffer interface coupled to the texture circuit,  
5           wherein the shader requests texture descriptors from the frame buffer interface,  
6   and the texture descriptors are stored for use by the texture circuit.

1           37.    The integrated circuit of claim 36 further comprising:  
2           a texture descriptor cache controller coupled between the shader and the frame  
3   buffer interface,  
4           wherein the texture descriptor cache controller receives texture descriptor requests  
5   from the shader.